

# Ovarian cancer screening was feasible but did not decrease incidence of index cancer or mortality

## QUESTION

What is the feasibility and effectiveness of screening for ovarian cancer in postmenopausal women?

## DESIGN AND SETTING

Randomized (concealed), unblinded, controlled trial with 7-year follow up in the United Kingdom.

## PARTICIPANTS

Altogether 22,000 women who were  $\geq 45$  years of age and were postmenopausal were invited to participate; 21 935 were randomly allocated to treatment. Exclusion criteria were having had a bilateral oophorectomy or ovarian cancer. All participants were traced through the National Health Service Central Register and the Family Health Services Authority.

## INTERVENTION

A total of 10,958 women were allocated to annual screening for ovarian cancer for 3 years; 10,977 were followed up with no screening (control group). Initial screening involved measuring serum CA 125 antigen. Women with CA 125 of  $\geq 30$  U/mL were recalled for pelvic ultrasonography. Women with abnormal ultrasonographic results (ovarian volume  $\geq 8.8$  mL) had a repeat scan to confirm the findings and were then referred for surgery.

## MAIN OUTCOME MEASURES

Incidence of index ovarian cancer and mortality.

## MAIN RESULTS AND CONCLUSIONS

Of 10,958 women allocated to screening, 9364 (86%) completed  $\geq 1$  screen. Of 29 women who had surgical

investigation, six had an index cancer. The positive predictive value of screening was 20.7%. Ten more women in the screening group developed cancer during follow up. Twenty women in the control group developed cancer. Among the women who developed cancer, survival was longer in those who received screening than in those in the control group (73 vs 42 months,  $P=0.011$ ), but mortality from index cancers did not differ between the groups ( $P=0.083$ ) (table). In postmenopausal women, ovarian cancer screening was feasible and had a positive predictive value of about 21%. Survival was longer in women who were screened, but no difference in mortality was seen between screened and control groups.

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N MacDonald, et al  
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## COMMENTARY

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Jacobs et al conclude that screening for ovarian cancer by measuring serum CA 125 and following this with pelvic ultrasonography is feasible and justifies a larger randomized trial to assess the effects on mortality. However, despite this trial, the benefits of population-based screening for ovarian cancer remain uncertain.

The participants were a highly motivated group of volunteers recruited from a previous study. About 86% of participants completed at least one screening. The applicability to a more general population is unknown. Although the study found an increase in median survival, no increase in overall survival was found. The authors note that the study was of insufficient size to show a survival advantage. In the approximately 11,000 women in the screened group, only 6 of 16 cases of index cancer diagnosed were found as a result of screening. In contrast, annual fecal occult blood testing for colorectal cancer results in an estimated 130 lives saved per 10,000 patients screened.<sup>1</sup>

Ovarian cancer is a comparatively rare disease, with an incidence of 11.2/100,000 in North America.<sup>2</sup> The problems inherent in screening for diseases of low prevalence have been illustrated in a decision analysis of the effectiveness of screening for ovarian cancer.<sup>3</sup> The average life expectancy in a population of screened women 65 years of age was estimated to increase by only three-quarters of one day of life. Given the small potential benefit for women with average risk, it seems that screening for ovarian cancer should be deferred at this time.

- 1 Winawer SJ, Fletcher RH, Miller L, et al. Colorectal cancer screening: clinical guidelines and rationale. *Gastroenterology* 1997;112:594-642.
- 2 Landis SH, Murray T, Bolden S, et al. Cancer statistics, 1999. *CA Cancer J Clin* 1999;49:8-31.
- 3 Schapira MM, Matchar DB, Young MJ. The effectiveness of ovarian cancer screening. A decision analysis model. *Ann Intern Med* 1993;118:838-843.

Screening versus no screening for death from index ovarian cancer at 7 years

Screening	No screening	Relative risk reduction (95% CI)	Number needed to treat
0.08%	0.16%	50% (-9 to 77)	Not significant

Relative risk reduction, 95% confidence interval, and number needed to treat calculated from data in article